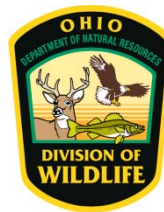


# Evaluating Stormwater Solutions in Ohio's Lake Erie Basin

Collaborative Learning Group meeting  
July 17, 2012



# Welcome

1. Introductions
2. Meeting objectives

# Meeting Objectives

- Visit Perkins Township Administration Building site and discuss planned stormwater designs
- Review design assistance projects and discuss opportunities for CLG participation
- Preliminary discussion of current stormwater policies and project activities
- Provide participants with project updates

# Morning Recap

- What did you like seeing at Perkins this morning?
- What else would you like to discuss or learn at other sites?

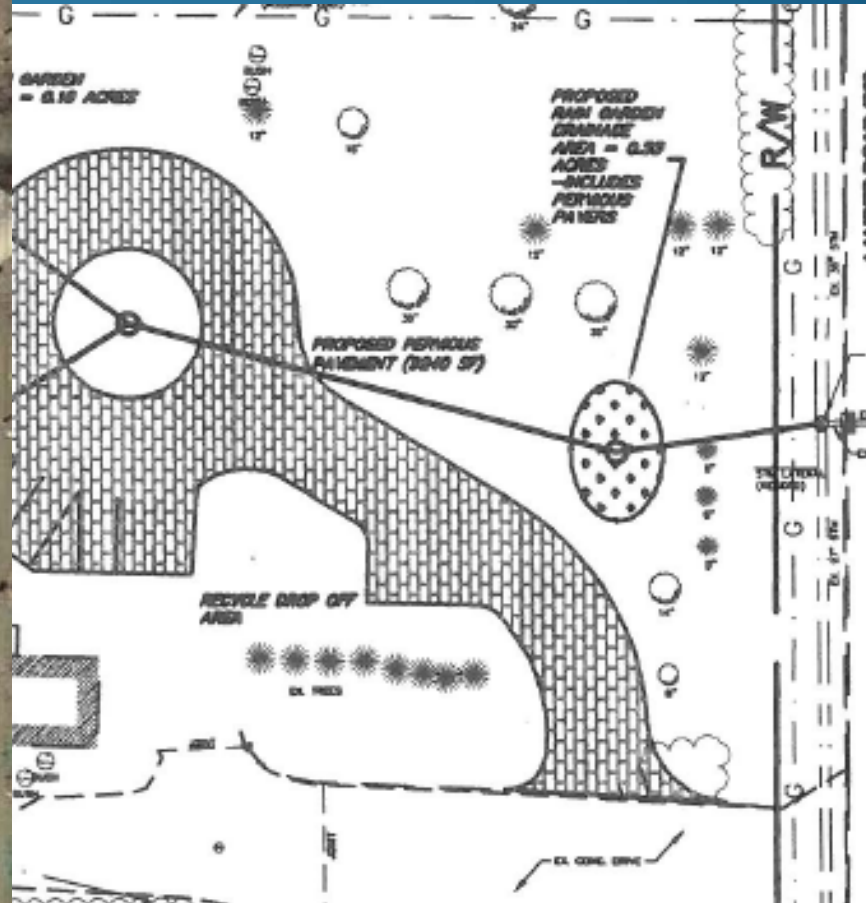
# Design Assistance Update

1. Overview
2. Pending projects
3. CLG involvement

# Design Assistance

- 5 proposals received
  - 4 proposed for funding with 10% decrease on funding request
    - 3 proposals are pending SWIF funding
  - 1 technical assistance

# Orange Village Service Facility



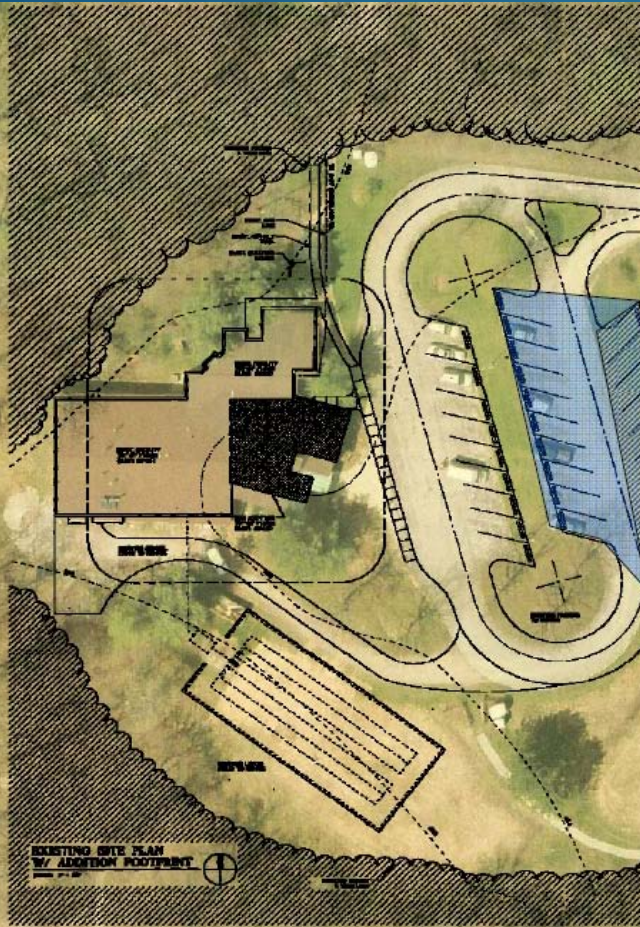


# Willoughby Hills Community Center







# Old Woman Creek NERR/Erie SWCD



Old Woman Creek National Estuarine Research Reserve and State Nature Preserve (Huron, Ohio)

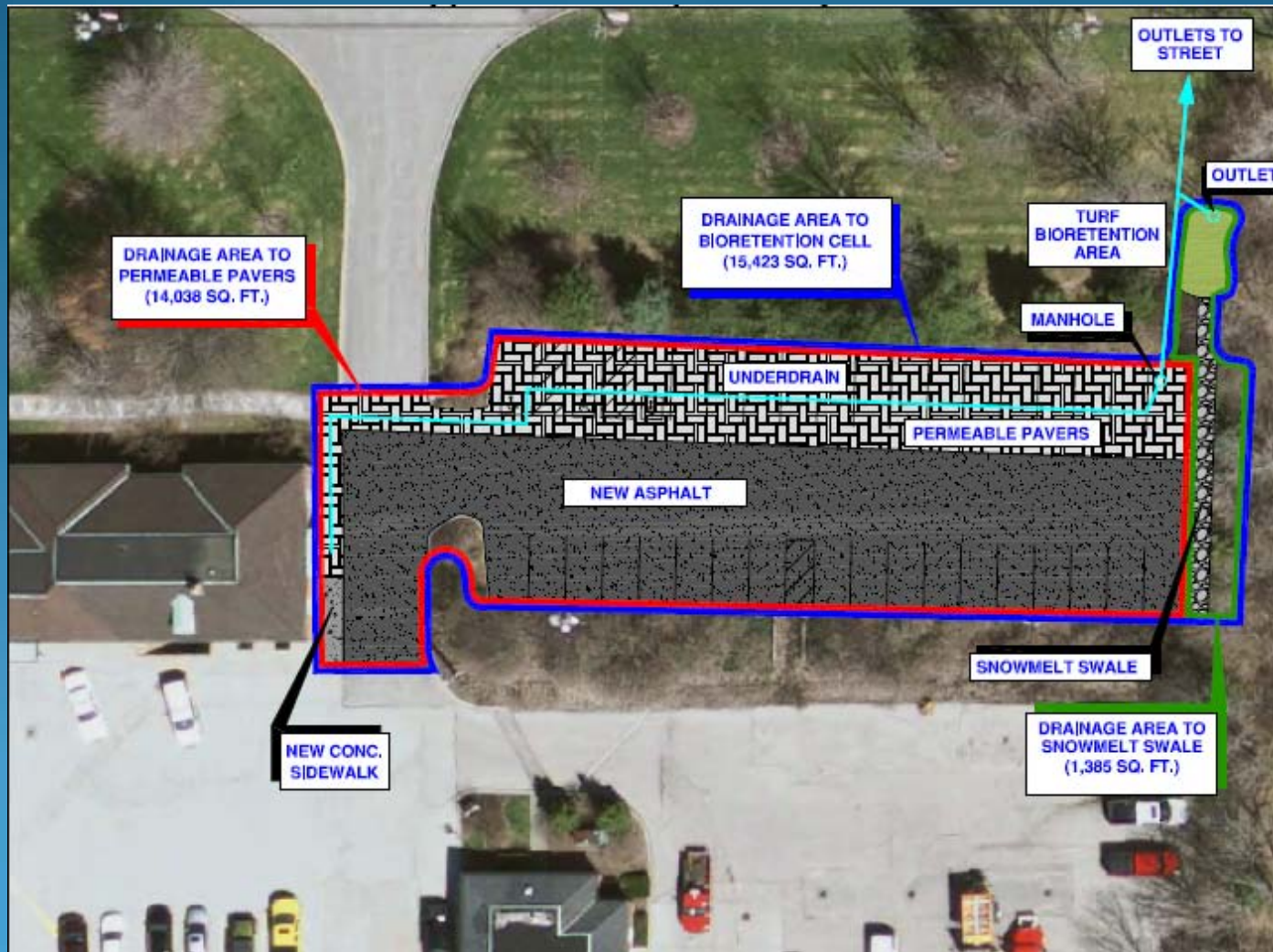
Proposed Site Plan and 2011 aerial photography

-  Proposed pervious asphalt (approx. 2800 sq ft)
-  Drainage basin to proposed pervious asphalt (approx. 7,032 sq ft)



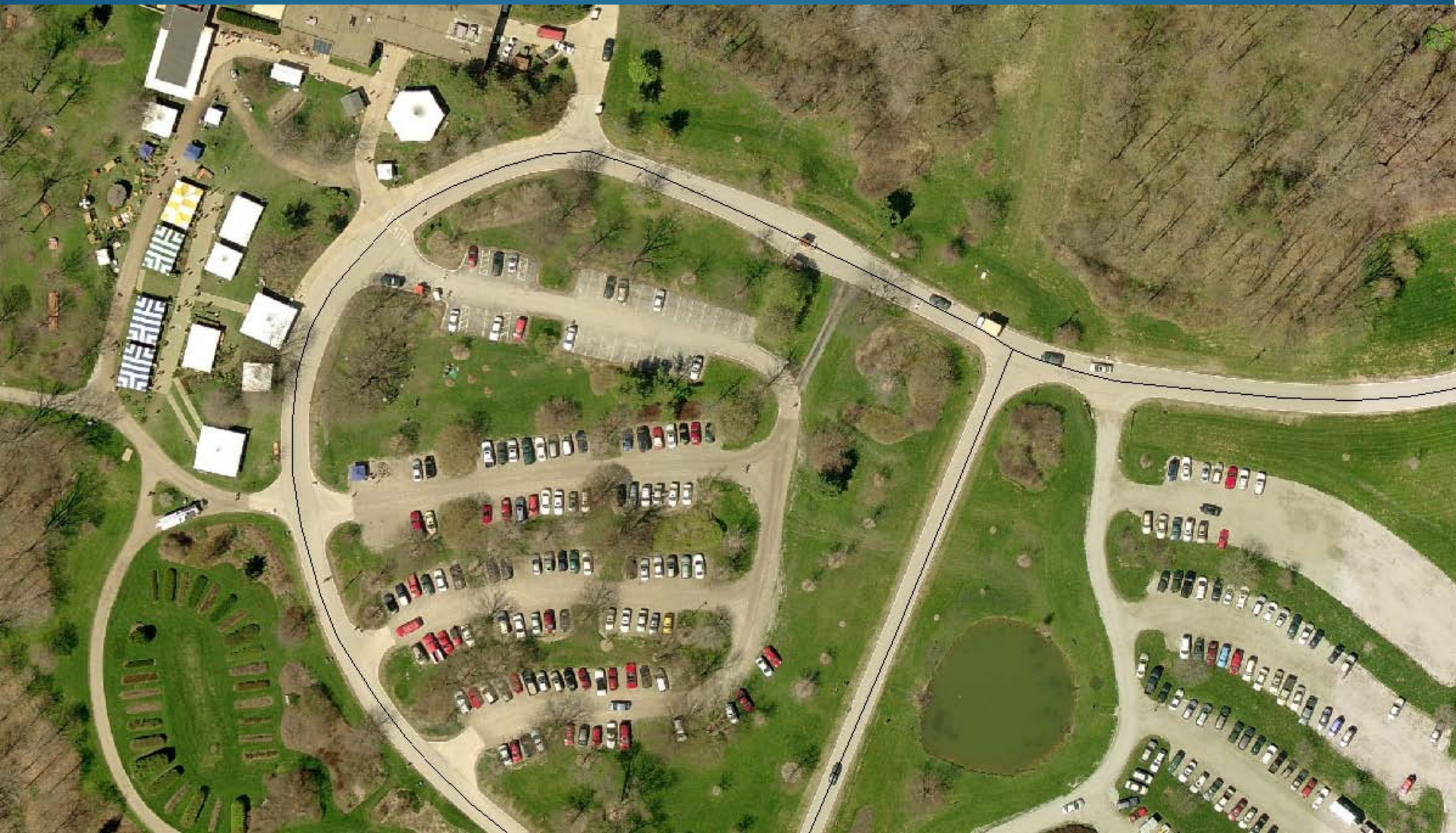


# Pepper Pike City Hall





# Holden Arboretum



# CLG involvement

- Proposed CLG Involvement with site engineering team and monitoring contractors:
  1. Webinar to review site designs
  2. Working site visits
  3. October 18 CLG Meeting: Design status
- How would you like to be engaged as the designs move forward?
  - Is above proposal enough?
  - Interest in further involvement - - Informal advisory group (6 months)?
    - Site specific
    - For all 5 sites

# Discussion: Stormwater project experience

# Stormwater policy needs

1. CRWP model zoning code overview
2. Group discussion



# Stormwater regulations and Guidance

- Ohio EPA Construction General Permit
- Local Stormwater Management Regulations
  - Quantity requirements: Critical Storm, Rational Method, Others?
- Design Manuals
  - Rainwater and Land Development
  - Regional manuals: Lake County Stormwater Department Bioretention Manual
  - Other State Manuals
- Stormwater Utility Credit Programs

# CRWP Model Codes

- Stormwater Management & Erosion and Sediment Control
  - Downspout Disconnection and Rain Barrels
- Illicit Discharge Detection and Elimination
- Flood Damage Reduction Codes with higher standards
- Riparian and Wetland Setbacks
- Conservation Development Districts
- Off Street Parking

# Current updates being considered for CRWP Stormwater Code

- Define Atlas 14 as appropriate precipitation data
  - CRWP code does not currently address.
  - Need to investigate other codes for inclusion.
  - Geauga SWCD recently added this to their County WMSC regulations.
- Investigate source/reason for Section XXXX.09(D)(3)(a)
  - “To account for future post-construction improvements to the site, calculations shall assume an impervious surface such as asphalt or concrete for all parking areas and driveways, regardless of the surface proposed in the site description.”

# Code and Guidance Needs and Timeframes

- Ohio EPA Construction General Permit:
  - Expires April 20, 2013
  - Watershed specific permits
- Problems with existing codes?
- Other codes of interest?
- What assistance is needed to adopt codes?

# Working Lunch

1. Monitoring update
2. Modeling update
3. CLG Business

# Monitoring Update

- Monitoring RFQ
  - Received 7 proposals
  - Interviews
    - University of New Hampshire Stormwater Center
    - North Carolina State University
    - Cardno JF New
  - Selected North Carolina State University
- Monitoring fact sheet
- Soil infiltration testing



# Infiltration Test Results - Perkins

- Three tests conducted under proposed pervious concrete practice (24-36" depth)





# Infiltration Test Results - Perkins

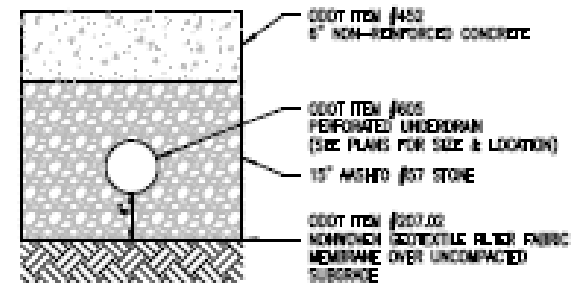
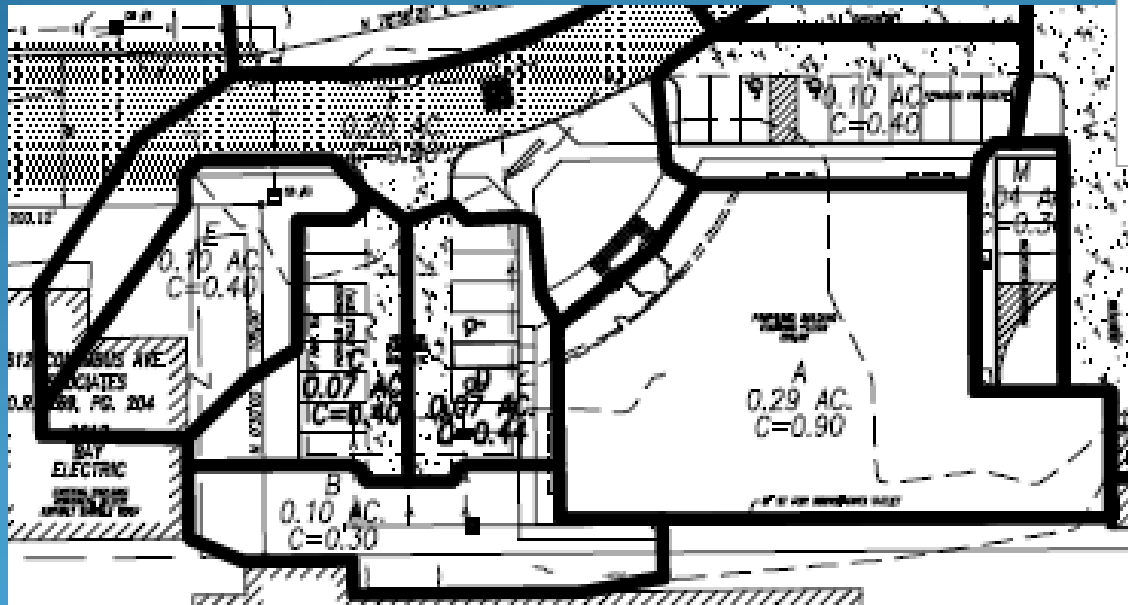
- Three tests conducted under proposed pervious concrete practice (24-36" depth)



# Infiltration Test Results - Perkins

- Three single-ring tests conducted under proposed pervious concrete practice (24-36" depth)
- Corrected test results
  - 0.08 in/hr
  - 0.04 in/hr
  - 0.05 in/hr

# Infiltration Test Results - Perkins



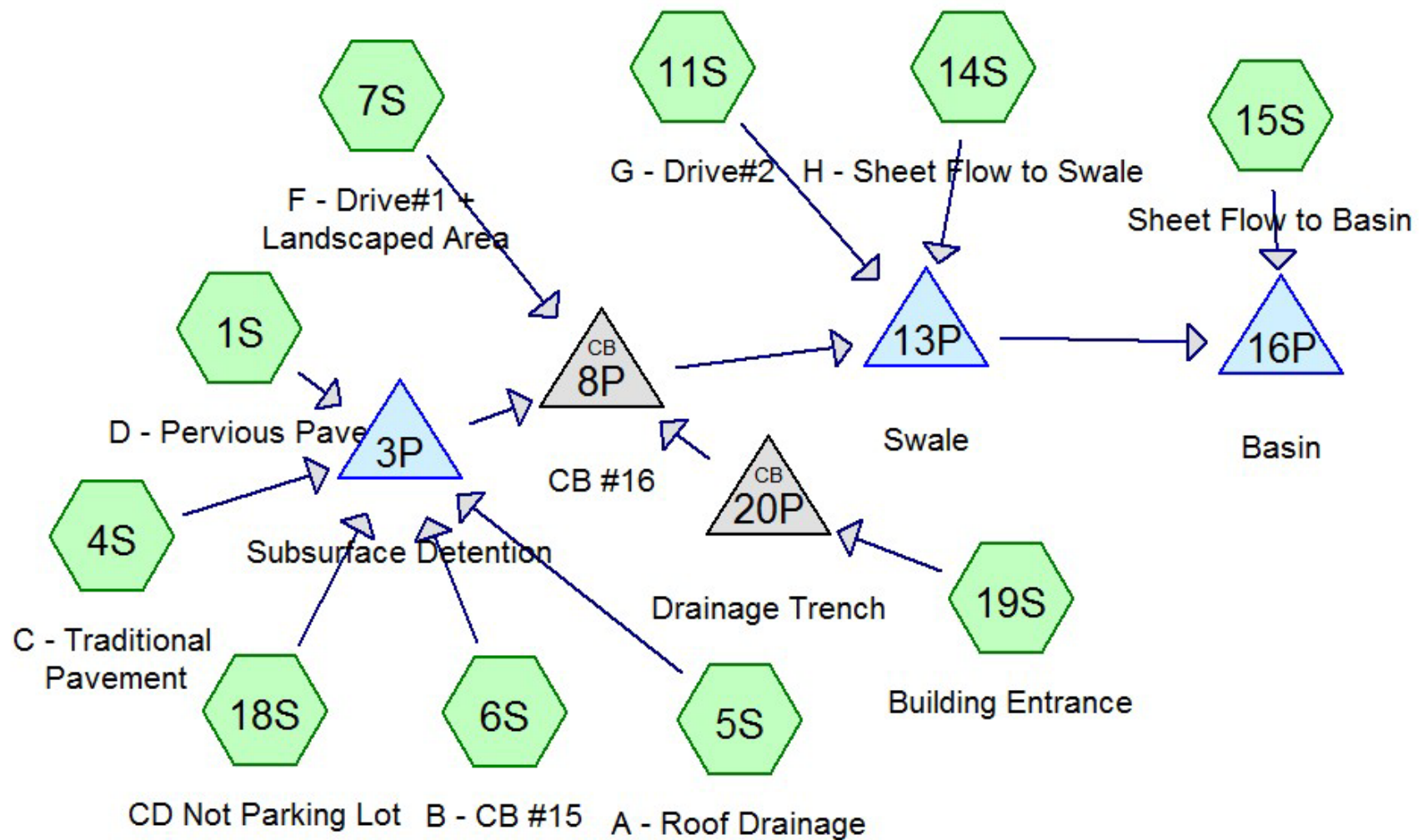
NON-REINFORCED CONCRETE FOR  
PARKING LOT DRIVE AREAS

NOT TO SCALE

# Infiltration Test Results - Perkins

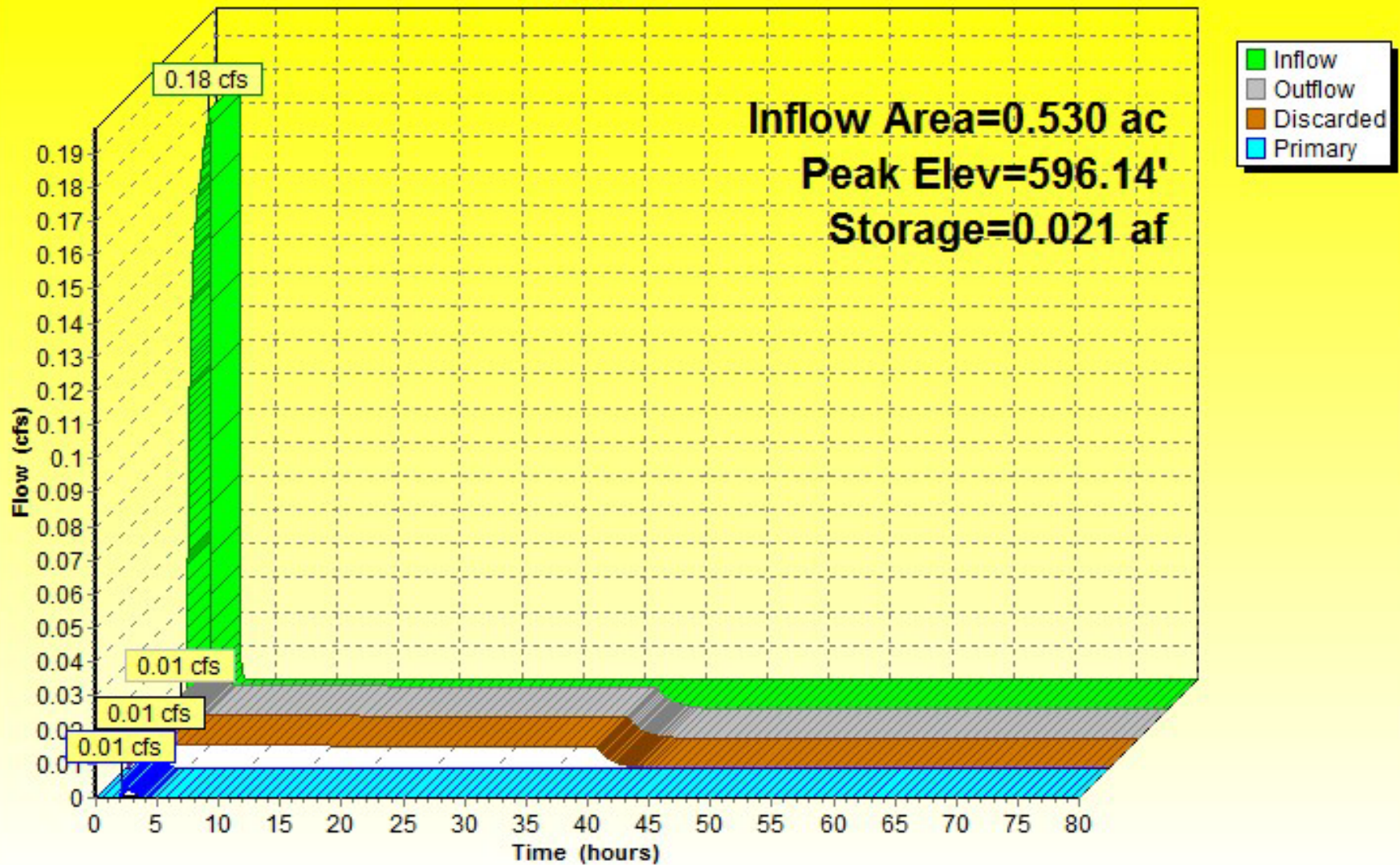
- Sump depth – 6"
- Assumed porosity – 40%
- Water storage below drain – 6" x 0.4 = 2.4"
- Storage/infiltration surface area – 0.11 Ac
- Sump volume – 2.4" x 0.11 Ac = 960 cu ft
- Watershed (drainage) area – 0.53 Ac
- Sump volume = 0.50 watershed inches
- Drawdown from 6" (full sump)
  - $t = 2.4 \text{ in} / 0.05 \text{ in/hr} = 48 \text{ hr}$







# Hydrograph



# Infiltration Results - OWC

- Four single-ring tests conducted under proposed pervious pavement practice (24" depth)
- Results for all tests were less than 0.005 in/hr



# Modeling Update

- Contract with Gibson Chen, Ph.D. P.E., of Avetin Engineering
- Assembling historic climate data for targeted watersheds to use as model inputs
- Research review of evapotranspiration estimation/modeling techniques

# Fall Workplan

- Complete stormwater design for four funded projects
  - CLG/Monitoring Site visits and webinars
- Instrument 2 projects for monitoring
- Begin building models
- Scoping for policy and technical tools
- CLG Meeting – October 18<sup>th</sup> with site visit TBD



# CLG Business

- Communications and outreach
  - Ohio Stormwater Conference
  - Firelands Coastal Tributaries Watershed Council
  - Northwest Ohio Urban Team
  - CRWP Board of Trustees Meetings
- Survey
- Next meeting: October 18<sup>th</sup> 9:00am-1:00pm (2013 meeting schedule to be announced)

# Project Contacts

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